WHAT IS CLAIMED IS:

1. In a vehicle detector in which vehicles are detected by an inductive sensor which exhibits a change in inductance in response to presence of a vehicle in a detection area, a method comprising:

monitoring a signal representative of inductance of an inductive sensor to produce measurement value;

detecting entry of a vehicle into a detection area associated with the inductive sensor, based upon a change in the measurement value with respect to a reference value;

calculating a time after vehicle exit from the detection area based upon a change in the measurement value during a time period subsequent to entry of the vehicle into the detection area;

producing a sample value based upon the signal after the time of vehicle exit;

comparing a reference value and the sample value; and

adjusting the reference value, based upon the comparison.

2. The method of claim 1 wherein the calculating a time of vehicle exit comprises:

determining a time rate of change of inductance of the inductive sensor;

determining a magnitude of change of inductance;

calculating vehicle speed based upon the time rate of change and the magnitude of change of inductance; and

calculating the time after vehicle exit based upon the vehicle speed.

3. The method of claim 1 wherein adjusting the reference value comprises:

setting the reference value equal to the sample value if the difference between the reference value and the sample value is greater than a predetermined threshold.

4. The method of claim 1 and further comprising:

setting the reference value equal to an average of a plurality of sample values, each measured after a vehicle has exited the detection area.

5. A method of checking a reference value used in an inductive sensor vehicle detector, which comprises:

measuring frequency of an oscillator signal to produce a measurement value which is a function of inductance of the inductive sensor;

indicating presence of a vehicle if a difference between the measurement value and reference value exceeds a threshold;

measuring vehicle speed of a vehicle passing through a sensor area based upon a rate of frequency change and a magnitude of

frequency change of the oscillator signal caused by the vehicle;

determining a time, based upon the vehicle speed, at which the vehicle will have sufficiently exited the sensor area so as to have substantially no influence on the frequency of the oscillator signal;

taking a sample measurement of the frequency of the oscillator at the time that was determined to be sufficient to allow the vehicle to exit the sensor area; and

adjusting the reference value based upon the sample measurement.

6. The method of claim 5 wherein adjusting the reference value comprises:

determining a difference between a first sample measurement and the reference value;

adjusting the reference value to the first sample measurement if a difference between them is greater than a predetermined level;

taking a predetermined number of additional sample measurements, each after a vehicle has been determined to have completed a pass through the sensor area;

comparing the sample measurements taken;

averaging the sample measurements to produce an average sample value; and

adjusting the reference value to the average sample value if comparing shows the

sample measurements are consistent with one another.

7. In a vehicle detector which senses presence of a vehicle with an inductive sensor, a method comprising:

measuring inductance of a dummy sensor which is unaffected by the presence of a vehicle;

comparing a currently measured inductance of the dummy sensor to a previously measured inductance of same dummy sensor; and

determining, based upon the currently and previously measured dummy sensor inductances, whether a change in measured inductance of the inductive sensor is due to a factor which affects inductance of the inductive sensor.

8. In a vehicle detector of a type in which an inductive sensor changes inductance in response to a vehicle, and in which an oscillator is connected to the inductive sensor to produce an oscillator signal having a frequency which is a function of inductance of the inductive sensor, a method of identifying a cause of changes in the oscillator signal frequency which are not caused by presence of a vehicle, the method comprising:

connecting the oscillator to a dummy sensor having inductance which is not affected by vehicles;

measuring the frequency of an oscillator signal while the oscillator is connected to the dummy sensor;

comparing the frequency measured to a previously measured frequency of the dummy sensor; and

determining, based upon the comparing, whether a change in frequency when the oscillator is connected to the inductive sensor is due to a change in a factor unrelated to the inductive sensor.

9. A method for identifying mechanical difficulties associated with a vehicle detector which uses an inductive sensor which changes inductance in response to presence of a vehicle, the method comprising:

measuring inductance of the inductive sensor over a plurality of measurement frame segments;

calculating a time rate of change of inductance of the inductive sensor; and

identifying existence of mechanical difficulties when the time rate of change of inductance calculated is in a predetermined range.

10. In an inductive sensor system in which an inductive sensor is connected to an oscillator to produce an oscillator signal having a frequency which is a function of inductance of the inductive sensor, a method of identifying changes in frequency of the oscillator signal caused by mechanical difficulties which require maintenance activity to correct, the method comprising:

measuring a change in frequency of the oscillator signal over each of a plurality of measurement frame segments;

calculating the rate of frequency change dF/dt of the sensor drive oscillator signal over the plurality of measurement frame segments;

determining whether the rate of frequency change dF/dt corresponds to a rate which is indicative of mechanical difficulties; and

providing a signal indicating existence of mechanical difficulties.

11. A method of adjusting a reference value of a vehicle detector which compares a measured value derived from an inductive sensor to a reference value, the method comprising:

calculating a measurement period;

measuring a change in the measured value during the measurement period;

comparing the change in the measured value to a threshold change; and

producing a new reference value based upon the change in measured value and the threshold change.

12. The method of claim 11 wherein the new reference value is produced if the change in the measured value is less than the threshold change by adding the change in the measured value to the reference value.

13. In a vehicle detector in which an inductive sensor is connected to an oscillator to produce an oscillator signal having a frequency which is a function of inductance of the inductive sensor, and in which presence of a vehicle is determined by comparing a measurement value which is a function of oscillator signal frequency to a reference value; a method of adjusting the reference value of a vehicle detector to reflect slow changes in oscillator frequency caused by environmental factors, the method comprising:

estimating maximum drift rates in the measurement values caused by the inductive sensor and vehicle detector components;

measuring a change in the measurement value during a time period defined by the estimated maximum drift rates;

comparing the change in the measurement value to a threshold change in value; and

producing a new reference value, if the change in the measurement value was less than the threshold change by adding a fraction of the change to the reference value.